

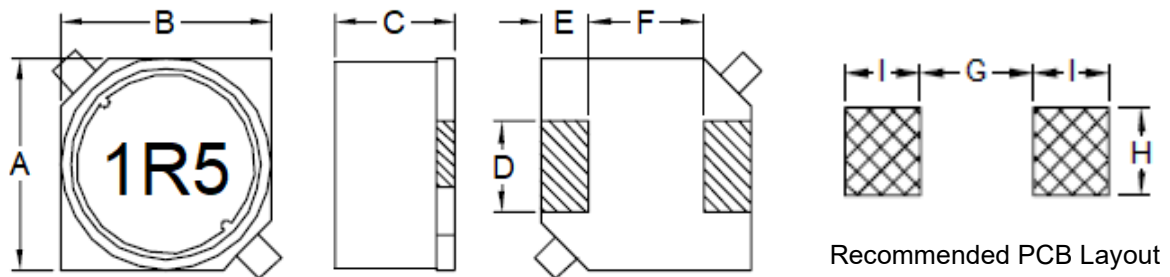
## 1. Part No. Expression

**SSB10031R5MZF**

(a) (b) (c) (d) (e) (f)

- |                     |                    |
|---------------------|--------------------|
| (a) Series Code     | (d) Tolerance Code |
| (b) Dimension Code  | (e) Special Code   |
| (c) Inductance Code | (f) Packaging Code |

## 2. Configuration & Dimensions (Unit: mm)



Note: 1. The above PCB layout reference only.

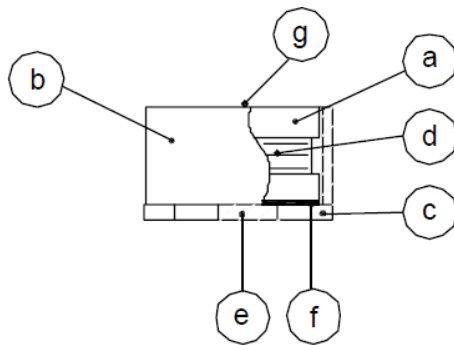
A	B	C	D	E
10.0±0.3	10.0±0.3	3.0±0.3	2.4±0.2	2.0±0.2
F	G	H	I	-
6.0±0.2	5.7 Ref	2.8 Ref	2.5 Ref	-

## 3. Schematic



NOTE: Specifications subject to change without notice. Please check our website for latest information.

## 4. Material List



- (a) DR Core
- (b) RI Core
- (c) Base
- (d) Wire
- (e) Terminal
- (f) Adhesive
- (g) Ink

## 5. General Specifications

- (a) Operating Temp.: -40°C to +125°C (including self-temperature rise)
- (b) Storage Temp.: -40°C to +125°C (on board)
- (c) All test data referenced to 25°C ambient.
- (d) Heat Rated Current (I<sub>rms</sub>) will cause the coil temperature rise  $\Delta T$  of 40°C Max.
- (e) Saturation Current (I<sub>sat</sub>) will cause inductance L<sub>0</sub> to drop 30% Max.
- (f) Rated Current: The lower value of I<sub>sat</sub> and I<sub>rms</sub>.
- (g) Storage Condition (Component in its packaging)
  - i) Temperature: Less than 40°C
  - ii) Humidity: Less than 60% RH

## 6. Electrical Characteristics

Part Number	Inductance ( $\mu$ H) $\pm 20\%$	Test Frequency	RDC (m $\Omega$ ) Max	IDC (A) Max
SSB10031R5MZ	1.5	1V/100KHz	22	4.00
SSB10032R2MZ	2.2	1V/100KHz	25	3.50
SSB10033R0MZ	3.0	1V/100KHz	40	3.00
SSB10035R2MZ	5.2	1V/100KHz	45	2.50
SSB10036R8MZ	6.8	1V/100KHz	60	2.20

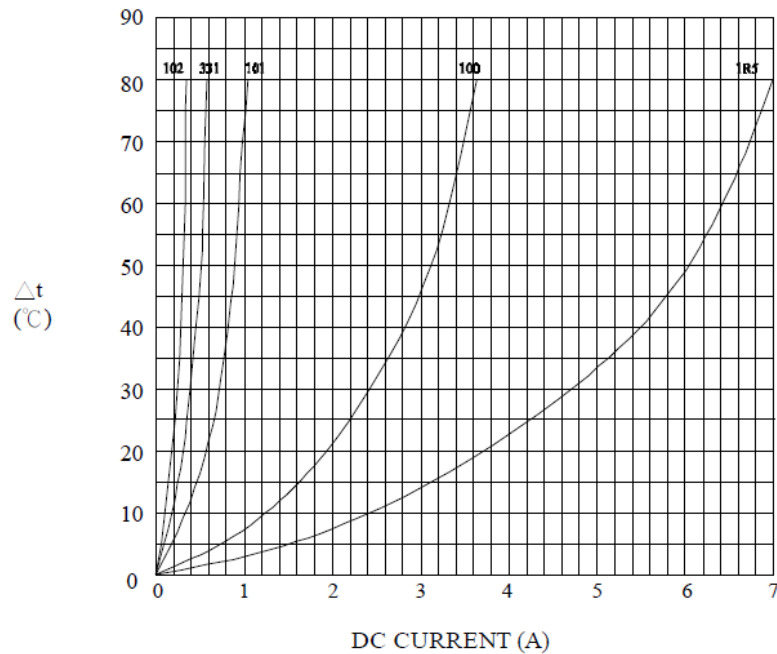
NOTE: Specifications subject to change without notice. Please check our website for latest information.

Part Number	Inductance ( $\mu$ H) $\pm 20\%$	Test Frequency	RDC (m $\Omega$ ) Max	IDC (A) Max
SSB1003100MZF	10	1V/100KHz	70	2.00
SSB1003120MZF	12	1V/100KHz	95	1.90
SSB1003150MZF	15	1V/100KHz	120	1.70
SSB1003180MZF	18	1V/100KHz	130	1.55
SSB1003220MZF	22	1V/100KHz	180	1.45
SSB1003270MZF	27	1V/100KHz	200	1.30
SSB1003330MZF	33	1V/100KHz	210	1.10
SSB1003390MZF	39	1V/100KHz	270	1.00
SSB1003470MZF	47	1V/100KHz	300	0.85
SSB1003560MZF	56	1V/100KHz	400	0.80
SSB1003680MZF	68	1V/100KHz	440	0.75
SSB1003820MZF	82	1V/100KHz	490	0.65
SSB1003101MZF	100	1V/100KHz	670	0.60
SSB1003121MZF	120	1V/100KHz	740	0.55
SSB1003151MZF	150	1V/100KHz	790	0.50
SSB1003181MZF	180	1V/100KHz	1200	0.45
SSB1003221MZF	220	1V/100KHz	1350	0.40
SSB1003271MZF	270	1V/100KHz	1800	0.38
SSB1003331MZF	330	1V/100KHz	2000	0.32
SSB1003391MZF	390	1V/100KHz	2100	0.30
SSB1003471MZF	470	1V/100KHz	3500	0.28
SSB1003561MZF	560	1V/100KHz	3900	0.25
SSB1003681MZF	680	1V/100KHz	4100	0.22
SSB1003821MZF	820	1V/100KHz	4550	0.20
SSB1003102MZF	1000	1V/100KHz	5100	0.18

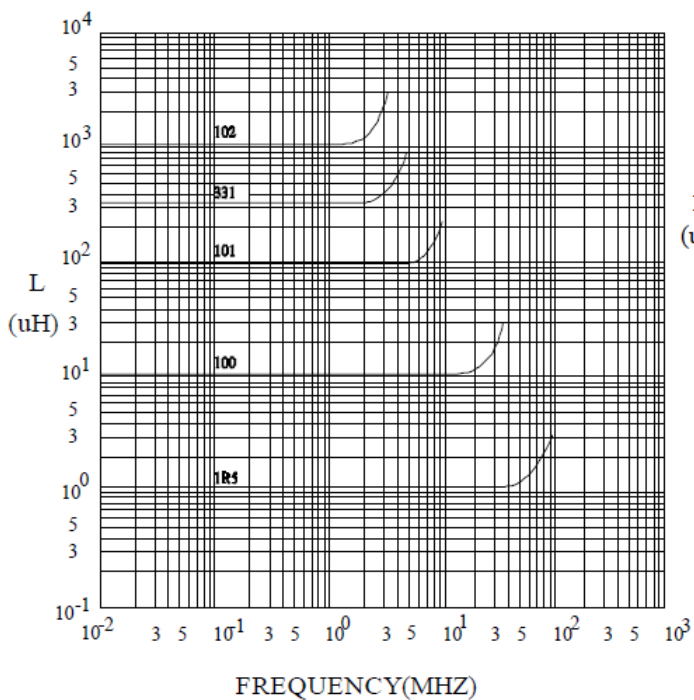
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## 7. Characteristics Curves

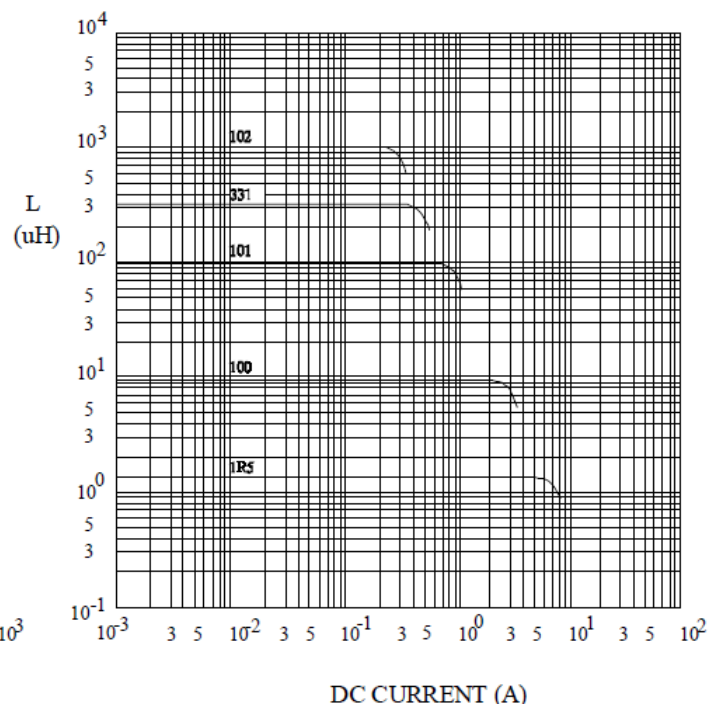
@ TEMP. RISE VS. DC SUPERPOSITION RESPONSE CURVE



@ INDUCTANCE VS. FREQUENCY RESPONSE CURVE



@ INDUCTANCE VS. DC SUPERPOSITION RESPONSE CURVE



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## 8. Soldering Specification

Mildly activated rosin fluxes are preferred. Our terminations are suitable for re-flow soldering systems. If hand soldering cannot be avoided, the preferred technique is the utilization of hot air soldering tools.

### 8-1. IR Soldering Reflow

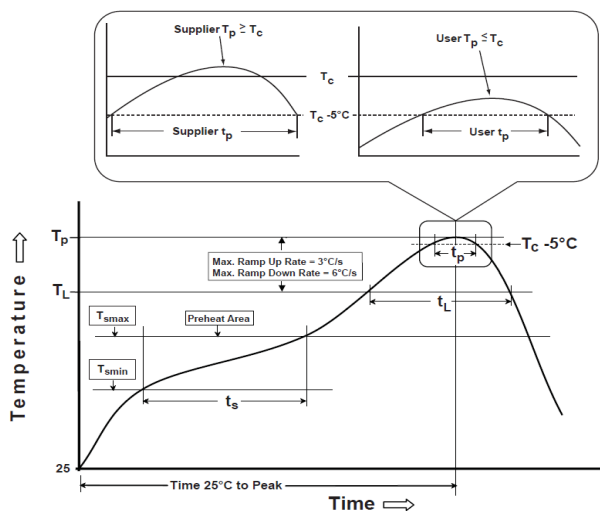
Recommended temperature profiles for lead free re-flow soldering in Figure 1, Table 1.1 & 1.2 (J-STD-020E).

### 8-2. Iron Reflow

Products attachment with a soldering iron is discouraged due to the inherent process control limitations. In the event that a soldering iron must be employed the following precautions are recommended (Figure 2).

Note:

- Preheat circuit and products to 150°C.
- 355°C tip temperature (Max.)
- Never contact the ceramic with the iron tip
- 1.0mm tip diameter (Max.)
- Use a 20 watt soldering iron with tip diameter of 1.0mm
- Limit soldering time to 4~5 sec.



Reflow times: 3 times Max

Figure 1: IR Soldering Reflow



Soldering iron method: 350±5°C Max

Figure 2: Iron soldering temperature profiles

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**Table (1.1) Reflow Profiles**

Profile Type:	Pb-Free Assembly
Preheat	
-Temperature Min ( $T_{\min}$ )	150°C
-Temperature Max ( $T_{\max}$ )	200°C
-Time ( $t_s$ ) from ( $T_{\min}$ to $T_{\max}$ )	60-120seconds
Ramp-up rate ( $T_L$ to $T_p$ )	3°C /second max.
Liquids temperature ( $T_L$ )	217°C
Time ( $t_L$ ) maintained above $T_L$	60-150 seconds
Classification temperature ( $T_c$ )	See Table (1.2)
Time ( $t_p$ ) at $T_c - 5^\circ\text{C}$ ( $T_p$ should be equal to or less than $T_c$ .)	* < 30 seconds
Ramp-down rate ( $T_p$ to $T_L$ )	6°C /second max.
Time 25°C to peak temperature	8 minutes max.

**$T_p$** : maximum peak package body temperature,  **$T_c$** : the classification temperature.

For user (customer)  **$T_p$**  should be equal to or less than  **$T_c$** .

\*Tolerance for peak profile temperature ( $T_p$ ) is defined as a supplier minimum and a user maximum.

**Table (1.2) Package Thickness/Volume and Classification Temperature ( $T_c$ )**

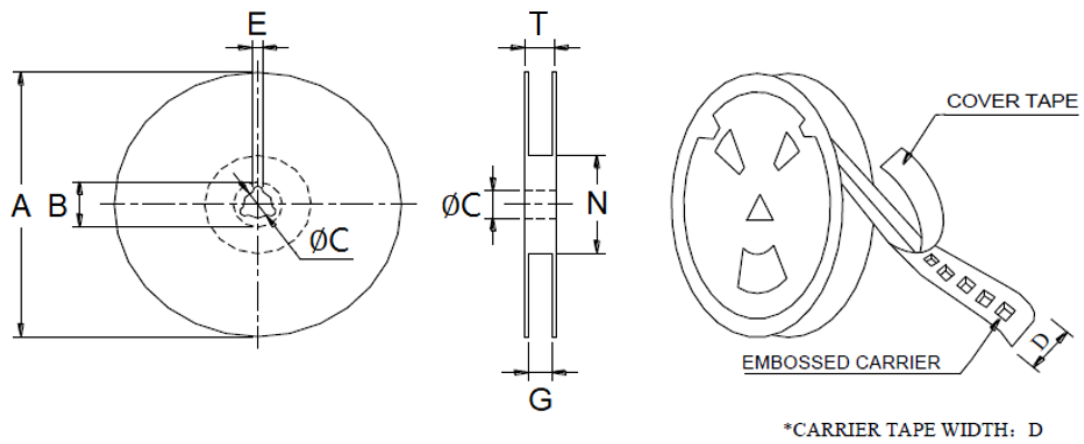
	Package Thickness	Volume mm <sup>3</sup> <350	Volume mm <sup>3</sup> 350-2000	Volume mm <sup>3</sup> >2000
PB-Free Assembly	<1.6mm	260°C	260°C	260°C
	1.6-2.5mm	260°C	250°C	245°C
	≥2.5mm	250°C	245°C	245°C

Reflow is referred to standard IPC/JEDEC J-STD-020E.

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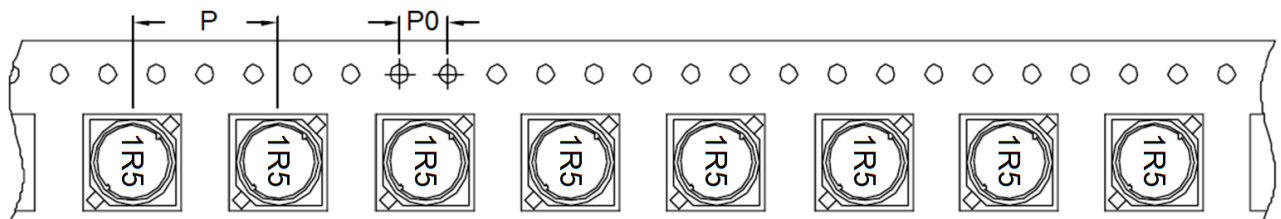
## 9. Packaging Information

### 9-1. Reel Dimension (Unit: mm)



Type	A	B	C	D	G	N	T
13"x24mm	330.0 Ref	21.0 Ref	13.0 Ref	24.0 Ref	26.0 Max	50.0 Min	30.4 Ref

### 9-2. Tape Dimension (Unit: mm)



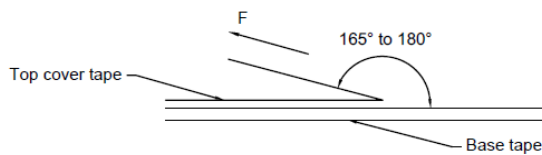
P	P0
16	4

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## 9-3. Packaging Quantity (Unit: Pcs)

Inner: Reel			Outer: Carton		
Qty (pcs)	G.W (gw)	Style	Qty (pcs)	G.W(kg)	Size (cm)
1,000	1,000	13-24	4,000	7.5	38 x 36.5 x 21

## 9-4. Tearing Off Force



The force for tearing off cover tape is according to the follow table, in the arrow direction under the following conditions.

(Referenced ANSI/EIA-481-D-2008 of 4.11 standard)

Room Temp. (°C)	Room Humidity (%)	Room atm (hPa)	Tearing Speed (mm/min)
5~35	45~85	860~1060	300±10

Tape Size	8 mm	12 to 56 mm	72 mm or Wider
Tearing Off Force (grams)	10~100	10~130	10~150

## Application Notice

### 1. Storage Conditions

To maintain the solderability of terminal electrodes:

- (a) Recommended products should be used within 12 months from the time of delivery.
- (b) The packaging material should be kept where no chlorine or sulfur exists in the air.

### 2. Transportation

- (a) Products should be handled with care to avoid damage or contamination from perspiration and skin oils.
- (b) Vacuum pick up is strongly recommended for individual components.
- (c) Bulk handling should ensure that abrasion and mechanical shock are minimized.

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